WHAT IS CLAIMED IS:

1. A packer for use in a subterranean well, the packer comprising:

an actuator for setting the packer, the actuator including multiple pistons circumferentially spaced apart from each other.

2. The packer of claim 1, wherein each of the pistons is received in a respective one of multiple bores formed in a single structure of the packer.

3. The packer of claim 1, further comprising a force transmission device coupled to each of the pistons.

4. The packer of claim 3, wherein the force transmission device is displaceable to set the packer by less than all of the pistons.

5. The packer of claim 3, wherein the force transmission device is releasable from each of the pistons during actuation of the actuator to set the packer.

6. The packer of claim 3, wherein the force transmission device extends across a structure having the pistons received therein.

7. The packer of claim 6, wherein the force transmission device extends through at least one opening formed through the structure, and wherein the pistons are received in respective ones of multiple bores formed in the structure.

8. The packer of claim 7, wherein the structure encircles an inner tubular mandrel of the packer.

9. The packer of claim 8, wherein the actuator is free of any direct attachment to the mandrel.

10. The packer of claim 1, further comprising an outwardly extendable seal element and a slip assembly, and wherein the actuator is positioned between the seal element and the slip assembly.

11. An actuator for use in a well packer, the actuator comprising:

multiple pistons;

multiple bores, each of the pistons being received in a respective one of the bores; and

a force transmission device, each of the pistons being releasably coupled to the force transmission device.

12. The actuator of claim 11, wherein displacement of each of the pistons in a longitudinal direction causes displacement of the force transmission device in the same direction, but the force transmission device is displaceable in the longitudinal direction relative to each of the pistons.

13. The actuator of claim 11, wherein displacement of each of the pistons in a longitudinal direction causes displacement of the force transmission device in the same direction, but the force transmission device is displaceable in the longitudinal direction by less than all of the pistons.

14. The actuator of claim 11, further comprising a setting initiation device which applies a first biasing force to the force transmission device in response to pressure in the well, the first biasing force being greater than, and oppositely directed relative to, a second biasing force applied to the force transmission device by the pistons in response to pressure in the well.

15. The actuator of claim 14, wherein application of a predetermined pressure to the actuator causes the first biasing force to become less than the second biasing force, thereby permitting the second biasing force to cause displacement of the force transmission device.

16. The actuator of claim 11, wherein the pistons are capable of displacing the force transmission device at a pressure of greater than 19,000 pounds per square inch in the well.

17. The actuator of claim 11, wherein the pistons are circumferentially spaced apart from each other.

18. The actuator of claim 11, wherein the bores are formed in a generally annular shaped structure.

19. The actuator of claim 18, wherein the structure encircles an inner tubular mandrel of the packer.

20. The actuator of claim 19, wherein the structure is free of any direct attachment to the mandrel.

21. The actuator of claim 19, wherein the structure is reciprocably displaceable on the mandrel.

22. The actuator of claim 18, wherein the force transmission device extends longitudinally across the structure.

23. The actuator of claim 18, wherein the force transmission device extends longitudinally through the structure.

24. The actuator of claim 18, wherein the force transmission device includes at least one elongated member which extends through at least one opening formed longitudinally through the structure.

25. The actuator of claim 18, wherein the force transmission device includes multiple elongated members which extend through multiple respective openings formed longitudinally through the structure.

26. The actuator of claim 25, wherein the openings are circumferentially spaced apart from each other in the structure.

27. The actuator of claim 25, wherein the openings are circumferentially spaced apart from the bores in the structure.

28. The actuator of claim 11, wherein the force transmission device is displaceable to set the packer by less than all of the pistons.

29. The actuator of claim 11, wherein the force transmission device is releasable from each of the pistons during actuation of the actuator.

30. The actuator of claim 11, wherein the actuator is positioned longitudinally between an outwardly extendable seal element of the packer and a slip assembly of the packer.

31. The actuator of claim 11, wherein the force transmission device includes a ring, each of the pistons being capable of independently applying a biasing force to the ring in response to pressure in the well.

32. The actuator of claim 31, wherein each of the pistons has an elongated extension extending through a respective one of multiple openings formed through the ring.

33. The actuator of claim 32, wherein the openings are circumferentially spaced apart from each other in the ring.

34. The actuator of claim 32, wherein a shoulder formed on each of the extensions prevents displacement of the ring relative to each of the pistons in a first longitudinal direction, but permits displacement of the ring relative to each of the pistons in a second longitudinal direction opposite to the first direction.

35. The actuator of claim 31, wherein the force transmission device further comprises multiple elongated members, displacement of the ring by the pistons causing displacement of the members.

36. The actuator of claim 35, wherein the pistons and the members displace in a same longitudinal direction in response to pressure applied to the actuator.

37. The actuator according to claim 35, wherein the pistons and members are circumferentially spaced apart from each other in an annular shaped structure.

38. A method of setting a packer in a subterranean well, the method comprising the steps of:

increasing pressure on the packer in the well; and

displacing multiple pistons relative to respective multiple bores of an actuator of the packer in response to the pressure increasing step, thereby setting the packer in the well.

39. The method of claim 38, wherein the pressure increasing step further comprises admitting pressure through a rupture disc of the packer.

40. The method of claim 38, wherein the displacing step further comprises displacing a force transmission device with at least one of the pistons.

41. The method of claim 40, wherein the displacing step further comprises independently applying a biasing force to the force transmission device with each of the pistons.

42. The method of claim 40, wherein in the displacing step, each of the pistons is releasably coupled to the force transmission device.

43. The method of claim 40, wherein in the displacing step, each of the pistons is displaceable relative to the force transmission device.

44. The method of claim 38, wherein the pressure increasing step further comprises increasing to a pressure greater than 19,000 pounds per square inch applied to the packer in the well.

45. The method of claim 38, wherein the pressure increasing step further comprises exposing a chamber of the packer to pressure in the well, the chamber being at a pressure less than hydrostatic pressure in the well at the actuator prior to the pressure increasing step.

46. The method of claim 45, wherein the exposing step further comprises releasing a first biasing force applied in an opposite direction from a second biasing force applied by each of the pistons.

47. The method of claim 46, further comprising the step of applying the first and second biasing forces to a force transmission device of the packer.

48. The method of claim 47, wherein the applying step further comprises extending an extension of each piston through a respective one of multiple openings formed through a portion of the force transmission device.

49. The method of claim 48, wherein in the extending step, the portion of the force transmission device is a ring which encircles an inner mandrel of the packer.

50. The method of claim 38, further comprising the step of reciprocably mounting the actuator on an inner mandrel of the packer, so that the actuator is displaceable relative to the mandrel.

51. The method of claim 38, further comprising the step of positioning the actuator between an outwardly extendable seal element of the packer and a slip assembly of the packer.